

Abstract of the Disclosure

A system for depositing a composite polymer dielectric film on a substrate is disclosed, wherein the composite polymer dielectric film includes a low dielectric constant polymer layer disposed between a first silane-containing layer and a second silane-containing layer. The system includes a process module having a processing chamber and a monomer delivery system configured to admit a gas-phase monomer into the processing chamber for deposition of the low dielectric constant polymer layer, a post-treatment module for annealing the composite polymer dielectric film, and a silane delivery system configured to admit a vapor flow containing a silane precursor into at least one of the process module and the post-treatment module for the formation of the first silane-containing layer and the silane-containing layer.